REDACTED - FOR PUBLIC INSPECTION

January 27, 2016

Ms. Marlene H. Dortch
Secretary
Federal Communications Commission
445 12th Street, SW
Washington, DC 20554

Re: ***Special Access for Price Cap Local Exchange Carriers,* WC Docket No. 05-25,**
***AT&T Corporation Petition for Rulemaking to Reform Regulation of Incumbent Local Exchange Carrier Rates for Interstate Special Access Services,* RM-10593**

Dear Ms. Dortch:

I hereby submit this Declaration on behalf of Level 3 Communications, LLC, Windstream Services, LLC and XO Communications, LLC in this proceeding. I am currently serving as an outside consultant to the above-mentioned parties and am a Senior Consultant for a subsidiary of FTI Consulting.

Please do not hesitate to contact me at 202-274-4315 if you have any questions regarding this submission.

Sincerely,

Jonathan Baker

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Before the
Federal Communications Commission
Washington, D.C. 20554

In the Matter of	)	
	)	
Special Access Rates for Price Cap Local Exchange Carriers	)	WC Docket No. 05-25
	)	
	)	
AT&T Corporation Petition for Rulemaking to Reform Regulation of Incumbent Local Exchange Carrier Rates for Interstate Special Access Services	)	RM-10593

DECLARATION OF JONATHAN B. BAKER ON MARKET POWER IN THE PROVISION OF DEDICATED (SPECIAL ACCESS) SERVICES

I. Introduction

A. Qualifications

1. I am an economist specializing in antitrust, industrial organization economics, and regulation. I am currently a Professor of Law at American University Washington College of Law, where I have taught since 1999, mainly in the areas of antitrust and the economic regulation of business. I am also a Senior Consultant for a subsidiary of FTI Consulting.

2. I have served in several senior U.S. government positions involving antitrust and regulation. Most recently, from 2009 to 2011, I served as the

Chief Economist of the Federal Communications Commission (FCC) and, during 2011, I served the FCC as a Senior Economist for Transactions. From 1995 to 1998, I served as the Director of the Bureau of Economics at the Federal Trade Commission. Previously, I worked as a Senior Economist at the President's Council of Economic Advisers, Special Assistant to the Deputy Assistant Attorney General for Economics in the Antitrust Division of the Department of Justice, an Assistant Professor at Dartmouth's Amos Tuck School of Business Administration, an Attorney Advisor to the Acting Chairman of the Federal Trade Commission, and an antitrust lawyer in private practice.

3. I am also the co-author of an antitrust casebook, a past Editorial Chair of the *Antitrust Law Journal*, a past Chair and past member of the Executive Committee of the Antitrust and Economic Regulation Section of the Association of American Law Schools, and a past member of the Council of the American Bar Association's Section of Antitrust Law. I have received American University's Faculty Award for Outstanding Scholarship, Research, and Other Professional Accomplishments, and the Federal Trade Commission's Award for Distinguished Service. I earned a J.D. from Harvard and a Ph.D. in economics from Stanford University. My curriculum vitae, which is attached, details my background, experience, past testimony, and publications.

B. Assignment

4. I have been asked by three competitive local exchange carriers (CLECs) – Level 3 Communications, Windstream, and XO Communications – to evaluate the extent to which incumbent local exchange carriers (ILECs) exercise market power in markets for the provision of dedicated services. In the context of conducting this evaluation, I was asked to review and analyze the data made available by the Federal Communications Commission in response to the Commission's Special Access Data Collection.

C. Summary of Major Conclusions

5. The potential exercise of market power in the provision of dedicated services may be analyzed in markets for dedicated services provided over a wireline connection to each customer location. The product market excludes best efforts business broadband and dedicated services provided over a fixed wireless connection. (Defining dedicated services provided over a wireline connection as a product market does not rule out also defining narrower product markets, and defining each customer location as a geographic market does not rule out also defining broader geographic markets.)

6. In the data made available by the FCC, most dedicated services markets are monopolies, and most of the rest are duopolies. When there is one provider, it is nearly always an incumbent local exchange carrier

(ILEC). Most duopoly markets are served by an ILEC and a competitive local exchange carrier (CLEC). (Some CLECs are cable providers offering dedicated services.) In many markets, some, if not most or all CLECs provide only a limited constraint on the prices charged by the ILEC. Moreover, the prospect of entry is unlikely to deter incumbents from charging supracompetitive prices.

7. Given the structure of dedicated services markets, ILECs are likely able to exercise market power in most markets, and would be expected to charge prices above competitive levels unless prevented by regulation.

8. **[BEGIN HIGHLY CONFIDENTIAL]** [redacted] **[END HIGHLY CONFIDENTIAL]**

II. Dedicated services

9. This report uses the term "dedicated services" to refer to the transmission of data, often using dedicated facilities but also including other dedicated connectivity, to provide customers with a specified bandwidth along an agreed-upon route.

A. Technology

10. Many dedicated services connections are circuit-based (as opposed to packet-based). Many of these use the TDM (time-division multiplexing) protocol, a centrally-controlled method for sending multiple signals over the same connection. TDM services are provided primarily using DS1 or DS3 (collectively DSn) electronics, although there are also higher bandwidth TDM services. DS1 services have 1.5 Mbps capacity individually and up to 12 Mbps if bonded. DS3 services have 45 Mbps capacity and are rarely bonded.

11. Other dedicated services connections use a packet-based Internet protocol (IP), such as the Ethernet protocol. (The Ethernet protocol is an industry standard that is typically used for local area networks (LANs) within buildings and wide area networks (WANs.) Connections using Ethernet electronics have flexible transmission capacities which range from 1 or 2 Mbps to 1 Gbps or more. DSn services can be converted to Ethernet protocol by adding electronics.

12. TDM and Ethernet electronics can each be employed with fiber or copper facilities (including hybrid facilities). Fiber is typically employed when high transmission capacity is required, and the relative prevalence of fiber is growing as ILECs retire copper loops. When Ethernet is provided over bare copper loops, maximum bandwidth is usually lower and service may be less reliable than when Ethernet is provided over fiber. (Lower speed retail Ethernet service can also be provided using wholesale DS1 and Ds3 connections (Ethernet-over-serial or Ethernet-over-TDM).)

13. In constructing data and voice transmission networks, dedicated services connections may link an end user location with a network location, as by linking business customers in office buildings to an ILEC's central office, CLEC's node (network interconnection point), or interexchange (long distance) carrier's (IXC's) node. These links may be used to provide services to a single end user location, or to construct networks that connect multiple end user locations (as with bank branch locations, affiliated hospitals, or schools in a system), whether those locations are found in a single city or a larger region. Dedicated services connections may also link a cell tower with an ILEC's or wireless provider's network interconnection point, to provide backhaul services for wireless providers.

B. Providers and Facilities

14. Dedicated services are provided by ILECs and CLECs (which in some cases are cable providers). For regulatory purposes, the FCC has separated the dedicated facilities used in the provision of TDM services into two segments: channel termination and local transport. (The regulatory scheme is discussed further below.) Channel termination facilities (also termed last-mile connections or local loops) run between the end user's location and an ILEC central office or wire center.[1] Local transport facilities (also termed dedicated transport, inter-office transport, or channel mileage) connect ILEC central offices or wire centers (including connections to a competitor's network collocation at a different central office).

15. When dedicated services are provided by a CLEC, the CLEC commonly offers the services using an ILEC's connection for channel termination and the CLEC's own facilities for local transport. On occasion, though, a CLEC may instead, or in addition, use its own or another CLEC's channel termination facilities, or an ILEC's or another CLEC's local transport facilities.

16. A CLEC may obtain the facilities it uses to provide dedicated services in a number of ways. It may build its own facilities, including

[1] A second type of channel termination, between a CLEC or IXC node and an ILEC central office, wire center, or similar ILEC location, is termed an entrance facility (or port).

backbone facilities and last-mile connections. It may lease DSn or Ethernet services from an ILEC when the ILEC makes them available; these are typically combined with the CLEC's own network facilities when providing services. A CLEC may lease unbundled "dry copper" loops, or DS1 or DS3 capacity loops, from an ILEC (typically as an unbundled network element (UNE)) and add its own electronics. Or it may lease DSn or Ethernet services from another CLEC, or lease dark fiber loops from another CLEC (*e.g.,* Zayo) and add its own electronics. (Section V.A below identifies the providers that are considered market participants.)

C. Customers and Contracts

17. Wholesale customers, such as CLECs, almost always purchase dedicated services and UNEs for their transmission capabilities, using the dedicated connectivity as an input for providing business services to their retail customers. Wholesale contracts may be for the data transmission connection only, and may include DSn or Ethernet services. But dedicated services purchased at wholesale typically do not include additional services of the type often sold to retail customers, described below.

18. A CLEC may purchase dedicated connectivity at wholesale (usually from an ILEC) to make a connection within its network (*e.g.,* between a small island exchange and its network backbone) or when needed to meet a specific customer's needs (as may occur when a customer's location is not served by the CLEC's own last-mile network, particularly with

customers that require service in multiple locations). Wireless carriers purchase dedicated services at wholesale to create "backhaul" links between cell towers and their networks.

19. Retail customers (end users) differ widely in their reasons for purchasing dedicated services, as these customers use the data transmission provided by such connections as an input into the production of a variety of products and services, which will be referred to as managed services. Managed services might include, for example, an interoffice networking and collaboration service such as a virtual private network (VPN), video connections (as for conferencing), data storage, data security services, firewall management, and customer support. When end users purchase managed services, dedicated services (data transmission) are typically bundled in. Larger enterprises tend to purchase more, and more complex, managed services than smaller ones (as well as tending to demand higher bandwidth connections, greater reliability, superior performance, and connections involving multiple locations), although there are exceptions.

20. Wholesale customers and larger retail customers purchasing dedicated services often negotiate prices directly with firms selling dedicated services, though they may pay rates based upon tariffs, while smaller retail customers typically purchase dedicated services at more standardized prices. Contracts typically provide significant quality of

service (QoS) guarantees on service uptime, time to repair, jitter, latency, and packet delivery. QoS guarantees may also be implied by the nature of the service. (By contrast, it is unusual for contracts for best efforts broadband services to provide similar guarantees.)

D. Price Regulation

21. The FCC subjects some but not all dedicated services offered by ILECs to ex ante price regulation.[2] The regulatory scheme generally covers ILEC TDM-based services and some ILEC Ethernet services. Certain specified large ILEC Ethernet services have been exempted. DSn connection prices may be regulated under the regulatory scheme sketched below, or, if a DSn-capacity facility is offered as an unbundled network element (UNE), regulated under a different scheme.

22. For regulated dedicated services, ILEC tariffs establish, among other things, separate channel termination and channel mileage charges. A price cap index derived from a collection of services is set at levels theoretically adjusted over time for inflation and productivity gains (called the "X-factor"), and, possibly, for exogenous ILEC cost increases. (Beginning in 2004, the X-factor was set equal to the inflation adjustment.)

[2] Although dedicated services connections usually connect nearby locations, most carry more than 10% Internet or other interstate traffic, so are considered interstate service for FCC regulatory purposes.

23. In broad overview, the regulatory scheme has given ILECs pricing flexibility in a Metropolitan Statistical Area (MSA) when certain prerequisites were met: enough collocation by competitive carriers in ILEC wire centers, and enough investment by competitive carriers in fiber-based transport facilities to those collocations. Pricing flexibility does not exempt ILECs from a regulatory obligation to offer generally-available tariffs for TDM-based services, and ILECs that offer a customer volume and term discounts must make the same offer available to all similarly-situated customers. In practice, discounts can be combined through contract tariffs that effectively result in customer-specific pricing.

24. Phase I pricing flexibility permits ILECs to lower their rates through contract tariffs and volume and term discounts, but requires that they maintain their generally-available price-cap constrained tariff rates within a prescribed rate structure. Phase II pricing flexibility, which is predicated on greater fiber-based collocation but not on any measure of alternative last-mile transmission facilities, permits ILECs to raise or lower their rates in an area unconstrained by price caps and gives them freedom to alter their rate structures.[3] Pricing flexibility (either phase) has been granted in most large metropolitan areas. In August 2012, the FCC suspended further Phase I and Phase II grants, pending determination of a

[3] The ILECs must continue to maintain generally-available tariffed service offerings, but in practice this requirement does not constrain them in Phase II because they can create new service offerings to meet new customer demands and file tariff amendments that take effect at the end of the same day.

more precise method of measuring the degree of competition warranting pricing flexibility, without suspending pricing flexibility in MSAs where it had already been granted.

III. Analytical Framework for Evaluating Market Power

25. This report relies on methodologies standard in antitrust economics for making inferences about market power from market structure, conduct and performance. The approach employed is consistent with what the FCC called for in its 2012 *Suspension Order*,[4] the framework adopted in the FCC's 2010 *Qwest Phoenix Forbearance Order* to analyze whether forbearance should be granted from UNE regulation,[5] and the approach of the Department of Justice and Federal Trade Commission Merger Guidelines.[6] The sections below discuss market definition, market participants and rivalry, and entry.

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[4] *Special Access for Price Cap Local Exchange Carriers; AT&T Corporation Petition for Rulemaking to Reform Regulation of Incumbent Local Exchange Carrier Rates for Interstate Special Access Services*, Report and Order, 27 FCC Rcd. 10557, ¶¶ 87-104 (2012) (*Suspension Order*).

[5] *Petition of Qwest Corporation for Forbearance Pursuant to 47 U.S.C. § 160(c) in the Phoenix, Arizona Metropolitan Statistical Area,* 25 FCC Rcd. 8622 (2010) (*Qwest Phoenix Forbearance Order*), *aff'd, Qwest Corp. v. Fed. Commc'n Comm.,* 689 F.3d 1214 (10th Cir. 2012). The FCC described its *Qwest Phoenix* framework as a "traditional" market power analysis and relied on the Department of Justice and Federal Trade Commission Merger Guidelines in explaining it. *Qwest Phoenix Forbearance Order* at ¶¶ 24, 28, 28 n. 82, 37, 41. The United States Court of Appeals for the Tenth Circuit described the *Qwest Phoenix* framework similarly in its 2012 decision affirming the FCC's order in that matter. *Qwest Corp.*, 69 F.3d at 1230 (holding that the FCC's decision to adopt a market power approach was not arbitrary or capricious).

[6] The FCC highlighted its past reliance on the *Qwest Phoenix* and Merger Guidelines approaches in its 2012 *Suspension Order* at ¶89. *See also id.* at ¶92 (endorsing use of a multi-faceted fact-based market analysis as in line with current approaches to competition policy); *id.* at ¶ 92 n.289 ("In the *LEC Classification Order*, for example, the Commission considered several factors as part of its structural competition analysis, including the relevant product and geographic markets, market characteristics

IV. Market Definition

A. Methodology

26. Market definition is based on assessing the magnitude of buyer substitution, one of several economic forces affecting the ability of firms to exercise market power. (Other forces, including supply substitution and entry, and rivalry, are accounted for in other steps of a structural analysis of market power.) A market is a collection of products and locations, and, for a price discrimination market, also a group of targeted customers, that would form a valuable monopoly. Under the conceptual experiment set forth in the Merger Guidelines, a collection of products and locations (and possibly customers) is a market if it would be profitable for a hypothetical monopolist to raise price by a small but significant and non-transitory amount, accounting for the incentive of buyers to respond to higher prices by substituting to other products or locations (or not purchasing the product).[7]

27. The competitive concern with dedicated services markets involves the possibility that ILEC providers of such services exercised market power in the past, notwithstanding the regulatory regime governing pricing of some dedicated services and UNEs, as well as the possibility that

(including market shares), the potential for the exercise of market power, and whether the exercise of market power could be counteracted by potential entry by competitors.").

[7] U.S. Dep't of Justice & Fed. Trade Comm'n, Horizontal Merger Guidelines § 4.1.1 (2010). In the conceptual experiment, prices need not increase by the same amount for all products and locations in the collection, and may increase for only some products or at only some locations.

they exercise market power today and, absent regulatory reforms, will continue to do so in the future.[8] Although the analytical framework set forth in the Merger Guidelines primarily addresses a future exercise of market power, its general approach is also appropriate for evaluating the current and past exercise of market power.[9]

28. To evaluate buyer substitution possibilities, it is useful to have in mind four examples of customers of dedicated services: (a) a bank with multiple locations that leases dedicated connections for all locations; (b) a law firm with an office in a downtown building that leases a dedicated connection in order to provide each attorney with voice, Internet and video conferencing services; (c) a wireless provider that leases a dedicated connection to a cell tower; and (d) a CLEC that leases a last-mile connection to one or more locations of a multi-location customer (such as one or more branches of the bank (a)) in order to provide dedicated services at all locations. Buyers (a) and (b) are end users (retail purchasers). Buyer (c) is a wholesale purchaser, leasing dedicated services in order to sell wireless services to its customers. Buyer (d) is a provider of dedicated services to end users, leasing one connection from another

[8] *See, e.g., Order and Notice of Proposed Rulemaking*, WC Docket No. 05-25, RM-10593 ¶18 (Jan. 31, 2005) (*Special Access NPRM*).

[9] When the concern is with the possibility of competitive harm in the past, it is typically preferable to assess the magnitude of buyer substitution for the purpose of market definition by considering the extent to which buyers would respond to a small *decrease* in price by increasing purchases, substituting away from other products or locations. *See generally* Jonathan B. Baker, *Market Definition: An Analytical Overview*, 74 Antitrust L.J. 129, 169-173 (2007) (discussing market definition and the *Cellophane* fallacy when retrospective exclusion is alleged).

provider (a wholesale purchase) in order to sell dedicated services (and, likely, other services) to an end user.

29. These buyers may differ in many ways that affect the value they place on dedicated services, the cost of providing those services, and the set of possible providers they can look to. These differences may include buyer demands for transmission capacity, reliability, and service quality; the additional services bundled with their dedicated transmission capacity (which may affect their demands for capacity, reliability and service quality); the number and geographic distribution of the locations they seek dedicated connections to serve; their proximity to other customers (*e.g.,* in the same office building); the building access fees and other costs a new provider must bear to provide them with service; and their proximity to ILEC central offices and nodes on CLEC fiber rings.

B. Product Markets

30. This section explains why it is appropriate to define a product market for dedicated services provided over a wireline connection. This definition excludes, among other things, best efforts business broadband services and dedicated services provided over a fixed wireless connection.

This product market definition does not rule out also defining narrower product markets based on demand substitution considerations.[10]

(1) Exclusion of Best Efforts Business Broadband

31. Best efforts broadband is excluded because it lacks service quality features – particularly availability, reliability, customer support, and security – required by most dedicated services retail customers.[11] It may also lack the dedicated bandwidth (in both directions) those customers require. As a result, most customers of dedicated services would not substitute to a service provided over best efforts broadband in response to a small increase in the price of dedicated services, and few would substitute from best efforts broadband to dedicated services in response to a small decrease in the price of dedicated services.[12] Not surprisingly, dedicated services providers generally do not respond to changes in prices or contract terms offered by best efforts broadband providers by changing

[10] Smaller markets often are nested within larger ones. It is appropriate to analyze firm conduct in any or all markets in which competitive harm may be found. *See generally* Jonathan B. Baker, *Market Definition: An Analytical Overview*, 74 Antitrust L.J. 129, 148-51 (2007).

[11] Declaration of Chris McReynolds on behalf of Level 3 Communications, Inc. (Level 3 Provider Decl.) ¶ 20 (most of Level 3's customers do not view best efforts broadband Internet as sufficient to meet their needs, which include dedicated bandwidth, symmetrical speeds, service level agreements, and a high level of security); *compare* Declaration of Dan Deem, Douglas Derstine, Mike Kozlowski, Arthur Nichols, Joe Scattareggia, and Drew Smith (Windstream Decl.) ¶¶ 17-22 (describing common requirements of dedicated services buyers) *with id.* at ¶¶ 39-41 (describing different needs of best efforts customers); *see id. at* ¶ 29 (cable connections do not offer the services that dedicated services customers usually require).

[12] Windstream Decl. at ¶ 24. In practice, the retail customers that value most the service quality features available through dedicated services and not available through best efforts broadband generally have the most employees and spend the most on communications services. For that reason, CLECs often look to a potential buyer's number of employees and its level of communications spending to identify customer prospects. *See, e.g.,* Windstream Decl. ¶¶ 13-16.

prices or contract terms for their own services.[13] Hence a hypothetical monopolist of dedicated services is unlikely to find that the threat of buyer substitution to best efforts broadband makes it unprofitable to price above the competitive level.

32. In recent years, as its price has declined and available bandwidth has increased in many locations, best efforts broadband has often become the preferred option for retail customers with limited demands for service quality.[14] These may include customers who do not plan to purchase managed services (such as a dedicated wide area network or a hook up to a remote data center) and who, in consequence, place a lower value on reliability and security than do typical dedicated services buyers. At whatever bandwidth available for best efforts broadband, end users are typically in one camp or the other, preferring either dedicated services or best efforts broadband given the prices and attributes of each, and would not change their choice in response to a small shift in relative prices.[15]

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[13] Level 3 Provider Decl. ¶ 7.

[14] Windstream Decl ¶ 33; **[BEGIN HIGHLY CONFIDENTIAL]** [redacted]. **[END HIGHLY CONFIDENTIAL]**

[15] Windstream Decl ¶ 24; **[BEGIN HIGHLY CONFIDENTIAL]** [redacted] **[END HIGHLY CONFIDENTIAL]**The issue for market definition is the extent to which customers would substitute between dedicated services and best efforts broadband in the event dedicated services prices changed by a small amount, not whether best efforts broadband takes customers from dedicated services as best efforts broadband quality increases and prices decline. *See FTC v. Whole Foods* (D.C. Cir. 2007) (Tatel, J., concurring) ("[W]hen the automobile was first invented, competing auto manufacturers obviously took customers primarily from companies selling horses and buggies, not from other auto manufacturers, but that hardly shows that cars and horse-drawn carriages should be treated as the same product market.").

Accordingly, the growth in demand for best efforts broadband by small retail customers and some mid-sized customers does not justify expanding a dedicated services product market to include best efforts broadband.

33. Best efforts broadband also lacks the availability, reliability, security, and dedicated bandwidth demanded by wholesale customers of dedicated services (such as the buyer in example (d)). Wholesale customers seeking a last-mile connection or transport connection when putting together a dedicated services offering for their retail customers rarely use a best efforts broadband connection to fill in for a connection they seek, and would not change their views in response to a small change in the relative prices of those connections.[16]

2) Exclusion of Fixed Wireless Services

34. Fixed wireless services are also excluded from the product market. For retail customers in buildings (such as the buyers in examples (a) and (b)), fixed wireless **[BEGIN HIGHLY CONFIDENTIAL]** [redacted] **[END HIGHLY CONFIDENTIAL]**.[17] But fixed wireless is not generally viewed as a

[16] Declaration of Gary Black, Jr. on behalf of Level 3 Communications, Inc. (Level 3 Purchaser Decl.) ¶¶ 16-17 (Level 3 generally cannot use best efforts broadband Internet service to provide its own retail services).

[17] *See* Windstream Decl. ¶ 35; Level 3 Purchaser Decl. ¶ 20; Declaration of George Kuzmanovski (XO) ¶ 36.

substitute in these settings because of reliability issues arising from congestion, interference and rain fade; the necessity of locating equipment with a clear line of sight; and building access problems.[18] Products that are not substitutes for dedicated services over a wireline connection are properly excluded from the product market. Similar problems mean that fixed wireless is generally not a good substitute for wireless provider backhaul from cell towers (such as the buyer in example (c)).

C. Geographic Markets and Price Discrimination Markets

35. Customers of dedicated services provided over wireline, wholesale and retail, are tied to specific locations, and cannot substitute services located elsewhere. Nor would they relocate in response to a small increase in dedicated services prices at their existing location. Given relocation costs, it is difficult to imagine, for example, banks (example (a)), law firms (example (b)), cell towers (example (c)), or CLECs seeking last-mile connections (example (d)), responding to a small increase in the price of dedicated services at one location by moving their business to another location where prices are lower. Small differences in the price of dedicated services are similarly unlikely to matter materially to firms choosing initial locations (as with a law firm outgrowing its current space deciding where

[18] *See* Windstream Decl. ¶¶ 36-37; Level 3 Purchaser Decl. ¶ 20; Level 3 Provider Decl. ¶ 23; Declaration of James Butman (TDS) ¶¶ 21-22, Attachment to Letter from Thomas Jones to Marlene H. Dortch, Secretary, FCC, WC Docket No. 05-25, RM-10593, GN Docket Nos. 13-5 & 12-353 (filed March 26, 2015); *cf.* Declaration of George Kuzmanovski (XO) ¶ 36 (XO has not seen a meaningful market for establishing wireless links in lieu of building fiber on a standalone basis).

to move).[19] Accordingly, service to each customer location served by a dedicated connection – whether a specific office suite within a building, a particular cell tower, or the location of the channel term or local transport facility sought by a CLEC – is appropriately defined as a geographic market.[20] Defining individual customer locations as geographic markets does not rule out also defining broader geographic markets.[21]

V. Market Participants and Rivalry

A. Market Participants

36. Recognizing individual customer locations as geographic markets is not tantamount to identifying each incumbent seller as a monopolist of each customer.[22] A firm currently making a sale at a customer location is a

[19] Firms might consider the *availability* of the telecommunications services they desire in making location decisions, but the presence or absence of a service is equivalent to a price difference much greater than the small price change relevant to market definition.

[20] This geographic market definition is tantamount to defining a price discrimination market for dedicated services to each customer location. *Cf.* Federal Trade Comm'n & U.S. Dep't of Justice, *Commentary on the Horizontal Merger Guidelines* 8 (2006) (when appropriate, the antitrust agencies define individual customer procurements as separate price discrimination markets). This price discrimination market perspective recognizes that individual customers are targeted buyers to which price can be raised without inducing substantial demand substitution. That is, a hypothetical monopolist of dedicated services could discriminate in price against individual customers because it can identify them when setting prices, and customers subject to high prices cannot engage in arbitrage (purchase services indirectly from or through other customers that secure lower prices). (Arbitrage, such as the possibility that an Ethernet customer that has contracted for a large volume discount would resell to another tenant in its office building, is unlikely to be practical.)

[21] *See* Jonathan B. Baker, *Market Definition: An Analytical Overview*, 74 Antitrust L.J. 129, 149 (2007) (smaller markets may be nested within larger ones); *id.* at 158 (markets may collect products that are not demand substitutes for analytical convenience, for example when market shares and entry conditions are similar for each or when data limitations effectively require use of the same proxy to estimate market shares across all products).

[22] This discussion supposes that there is at least one incumbent seller. This report does not address competition to serve new customer locations not presently served by any provider (*e.g.,* through the construction of cell towers or office buildings).

market participant, along with what the Merger Guidelines term rapid entrants: firms not presently serving that location that can do so quickly and without substantial sunk expenditures (expenditures not recoverable upon exit).[23] For example, a CLEC may be able to serve customers at the location over owned or leased facilities, including a last-mile UNE leased from an ILEC.

37. CLECs often find it more economical to provide service to a new retail customer location through a UNE than by building facilities.[24] But a UNE may not be an available alternative, because of insufficient or insufficiently-conditioned facilities,[25] regulatory or contractual constraints,[26] or if the CLEC's operations are not collocated in the relevant ILEC wire center.[27] Furthermore, UNE loops (*e.g.,* DS1s and DS3s), have bandwidth limits, and UNE purchasers run a risk that those connections

[23] *See Suspension Order* at ¶99 (recognizing that the FCC can consider the impact of rapid entry using Merger Guidelines' approach to identifying market participants). *Cf.* Horizontal Merger Guidelines §5.1 (2010) ("If the relevant market is defined around targeted customers, firms that produce relevant products but do not sell them to those customers may be rapid entrants if they can easily and rapidly begin selling to the targeted customers.").

[24] When available, UNES are usually priced lower than other forms of dedicated last-mile connections offering comparable capacity. Windstream Decl. ¶¶ 56-57.

[25] Ethernet over "dry copper," for example, cannot be provided over loops with load coils, bridge taps, or repeaters, and must have copper from ILEC central office to the customer without use of a fiber feeder. Windstream Decl. ¶ 63.

[26] Windstream Decl. ¶¶ 57-58.

[27] *Id.* at ¶ 59.

will become unavailable.[28] For these reasons, providers serving end users with UNEs likely offer some competitive constraint on facilities-based providers, but only in some locations, only for some customers, and only to some extent.

38. CLECs may also lease dedicated services provided over non-UNE facilities from ILECs or CLECs.[29] But CLEC last-mile dedicated services connections (including cable) are not widely available.[30] Entry through leasing from an ILEC may be expensive, because the ILEC may have an incentive to raise wholesale prices to limit the possibility that the resulting retail competition would result in lower ILEC retail prices.[31] Consistent with this view, ILECs often charge a high price for wholesale connections relative to the retail price they charge for similar connections.[32] In

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[28] *Id.* at ¶¶ 65, 67. This could happen, for example, if an ILEC retires a copper loop. It could also happen if the FCC, a state commission, or a court interprets or changes rules to narrow the unbundling requirement (for example, to eliminate the requirement to provide DS1 or DS3 capacity loops over fiber loops and/or loops that use IP-based transmission technologies).

[29] *See* **[BEGIN HIGHLY CONFIDENTIAL]** [redacted] **[END HIGHLY CONFIDENTIAL]**

[30] Windstream Decl. ¶¶ 73-80; *see id.* at ¶ 81 (ILECs are the predominant source of all forms of dedicated services); Level 3 Purchaser Decl. ¶ 6 (ILECs are the only facilities-based provider of dedicated services to the vast majority of commercial buildings nationwide); **[BEGIN HIGHLY CONFIDENTIAL]** [redacted] **[END HIGHLY CONFIDENTIAL]**

[31] Where the ILECs have pricing flexibility or sell dedicated services not subject to ex ante price regulation (such as Ethernet), they may have the incentive and ability to charge a high wholesale price in order to reduce retail rivalry from the CLECs that lease dedicated connections from them. (That is, the ILEC may recognize a benefit from foreclosure (or, more generally, raising rivals' costs) when setting the wholesale price.) To similar effect, the regulated price for special access services that CLECs lease from ILECs or obtain as UNEs may be high relative to the retail price the CLEC receives.

addition, entry through leasing from an ILEC is often risky because ILECs generally preserve the ability to truncate connections before the end of the term.[33] For these reasons, dedicated services provided by leasing non-UNE connections would usually not be expected to constrain dedicated services prices, and the data analyses set forth below are unlikely to be biased by the absence of information on leased connections.[34]

39. As discussed more fully below, in connection with the analysis of entry, a firm not presently serving a retail customer that wishes to provide service to that customer using its own facilities will generally need to undertake substantial sunk expenditures, and may not be able to do so quickly.[35] The most likely exception is a firm serving other retail

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[32] Windstream Decl. ¶¶ 91-95; **[BEGIN HIGHLY CONFIDENTIAL]** [redacted] **[END HIGHLY CONFIDENTIAL]** ILECs often charge *more* for wholesale connections than for retail connections of the same type and contract term. Windstream Decl. ¶ 92. **[BEGIN HIGHLY CONFIDENTIAL]** [redacted] **[END HIGHLY CONFIDENTIAL]** Many PBDS connections were excluded from the data analysis because they were missing information on important characteristics (such as location or bandwidth) or reported that information inconsistently (such as reporting a single connection as having been purchased by different customers or as having different bandwidths within the same month). (Of course, wholesale prices can be set to have exclusionary effects whether or not they exceed the retail price.)

[33] Windstream Decl. ¶ 84.

[34] The data include locations with connections obtained as long-term leases through Indefeasible Right of Use (IRU) agreements. These connections have been treated as identical with owned connections in the data analysis below. The data do not report locations for non-UNE leased dedicated services connections, so these cannot be considered in the data analysis.

[35] In addition to the costs and delay associated with building a fiber ring and laterals, a provider not presently serving a retail location will frequently need to obtain building access and/or rights of way to reach the building.

customers in the same building with its own physical connection. Such a firm may be considered a rapid entrant for serving another customer at that location to which the CLEC wishes to sell (accounting for anticipated revenues), and thus viewed as a market participant in that geographic market.

40. It is possible that some firms with nearby fiber rings could be rapid entrants, but there are reasons to think otherwise. Unlike firms already serving customers in the same building, firms with nearby connections must undertake sunk facilities expenditures (on constructing the last-mile connection to a given building) and may require permission of the building owner and a local construction permit to do so (which may not be forthcoming or require additional sunk expenditures). After accounting for these and other costs, a recent study found that CLECs would not be able to obtain the revenue required in most business locations.[36] For these reasons, nearby fiber providers would be expected to offer less of a competitive constraint than providers already serving a building with their own facilities, and, in general, are better seen as potential entrants than as "rapid entrants" (as the Merger Guidelines use the term).[37]

[36] The study found that a CLEC would not find it profitable to build out its own last-mile facilities unless it can attain substantial end user density and penetration. CostQuest, Analysis of Fiber Deployment Economics for Efficient Provision of Competitive Service to Business Locations, Attachment A to Letter from Jennie Chandra, Windstream Corporation, to Marlene H. Dortch, Secretary, FCC, GN Docket Nos. 13-5 & 12-353, WC Docket Nos. 05-25 and 15-1, and RM-10593 (filed June 8, 2015).

[37] These possible entrants would need to be found close by. **[BEGIN HIGHLY CONFIDENTIAL]** [redacted]

B. Market Rivalry

41. This section discusses what can be learned about market rivalry from the data on dedicated services connections for 2013 made available by the FCC from the Special Access Data Collection. These data are used in Section V.B(1) in a structural analysis comparable to what the FCC typically undertakes to assess market power, and in Section V.B(2) to analyze market power in a different way, by studying how prices change as the number of rivals (*i.e.* market participants) grows.

42. The FCC's data reports information for individual dedicated services connections. The data generally include, for each connection, its location, revenues billed, and the identity of its provider. The data also identify features of the connection that include, among other things, bandwidth, whether the connection is circuit-based (CBDS) or packet based (PBDS), and whether the customer is an end user or another provider.[38]

[redacted] **[END HIGHLY CONFIDENTIAL]** Windstream Decl. ¶ 57; **[BEGIN HIGHLY CONFIDENTIAL]** [redacted] **[END HIGHLY CONFIDENTIAL]**

[38] A monthly price was constructed by summing the 'total_billed' variable for all line item charges on a monthly bill (*e.g.,* for mileage and termination) for a single connection, removing non-recurring charges and incorporating out of cycle adjustments or discounts where applicable, and averaging across all months for which a bill was provided. When providers did not follow the format of the FCC's data request, this process was modified based upon the providers' explanatory attachments and inferences from the appearance of the data. Connections with missing information, or with inconsistent information (such as a location or bandwidth that varied month to month), were excluded from the analysis. Observations that correspond to extreme prices (below the 1st percentile or above the 99th percentile for a given connection type (*e.g.,* DS1, or PBDS in the 100-500 Mbps bandwidth tier) were removed from the sample for the regression analyses only.

43. For the purpose of this report, a provider (ILEC or CLEC) currently providing dedicated service (other than through a leased connection) to the customer location *(i.e.* to any customer in the building) is termed an in-building provider.[39] A CLEC not currently providing service but with fiber nearby is termed a nearby provider. A provider is considered nearby if it is not presently providing service to the customer location but has fiber within either the same census block or a census block with a boundary less than 0.5 miles away.[40] For the reasons discussed above, in-building providers are considered market participants, while nearby providers are viewed as potential entrants.

(1) Number of Market Participants

44. In the great majority of customer locations, in the geographic markets identified above, only one firm provides service. **[BEGIN HIGHLY CONFIDENTIAL]** [redacted]

[39] A firm offering dedicated services to a building is counted as an in-building facilities-based provider if it either owns a connection or leases one through an IRU. The typical end user is served by only one dedicated services provider, but occasionally customers obtain service from multiple providers to increase reliability through redundancy.

[40] **[BEGIN HIGHLY CONFIDENTIAL]** [redacted] **[END HIGHLY CONFIDENTIAL]**Windstream Decl. ¶ 51; **[BEGIN HIGHLY CONFIDENTIAL]** [redacted] **[END HIGHLY CONFIDENTIAL]** *see* Declaration of James Butman (TDS) (filed March 26, 2015) ¶ 16 (TDS does not bid on projects to build fiber more than **[BEGIN HIGHLY CONFIDENTIAL]** [redacted] **[END HIGHLY CONFIDENTIAL]**feet).

[redacted]

[END HIGHLY CONFIDENTIAL] Measured either way, almost all buildings **[BEGIN HIGHLY CONFIDENTIAL]** [redacted] **[END HIGHLY CONFIDENTIAL]** have no more than two providers.[43]

45. When there is only one in-building provider, moreover, it is nearly always the ILEC.[44] **[BEGIN HIGHLY CONFIDENTIAL]** [redacted] **[END HIGHLY CONFIDENTIAL]**

46. These statistics demonstrate that usually one firm, and almost always no more than two firms, serves most locations (geographic

[41] **[BEGIN HIGHLY CONFIDENTIAL]** [redacted]. **[END HIGHLY CONFIDENTIAL]**

[42] **[BEGIN HIGHLY CONFIDENTIAL]** [redacted] **[END HIGHLY CONFIDENTIAL]**

[43] **[BEGIN HIGHLY CONFIDENTIAL]** [redacted]. **[END HIGHLY CONFIDENTIAL]**

[44] *See* Windstream Decl ¶ 26.

[45] **[BEGIN HIGHLY CONFIDENTIAL]** [redacted] **[END HIGHLY CONFIDENTIAL]**

markets) with dedicated services (a product market). Thus, the great majority of these markets are monopolies or duopolies.

47. The structure of these markets raises competitive concerns. In markets for dedicated services with a single provider – the majority of markets – the dedicated services monopolist would have the incentive and ability to charge a supracompetitive price.[46]

48. Markets with two providers –most of the rest – are also unlikely to perform competitively. As a general matter, the economics literature recognizes that markets with more than one significant firm do not necessarily perform competitively, and that firms will likely exercise market power in markets with few market participants. That is the prediction of most common oligopoly models,[47] and the common finding of within-industry studies is that greater concentration leads to higher prices.[48]

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[46] This would not be the case if supracompetitive prices are prevented by regulation. That would not be possible in areas in which price flexibility has been granted. Whether supracompetitive pricing is prevented in the remaining areas depends on the effectiveness of price cap regulation.

[47] The primary exception, Bertrand competition with homogenous products and constant marginal costs, is unlikely to characterize directed service, and in any case would not apply when there is only one provider.

[48] *See, e.g.,* Richard Schmalensee, *Inter-Industry Studies of Structure and Performance*, in 2 HANDBOOK OF INDUSTRIAL ORGANIZATION 988 (R. Schmalensee & R. Willig, eds. 1989) (Stylized Fact 5.1) (empirical survey); Leonard Weiss, *Conclusion*, in CONCENTRATION AND PRICE 266-89 (Leonard Weiss, ed. 1989) (empirical survey). For other within-industry examples relating concentration and prices*, see*, *e.g.*, Timothy F. Bresnahan & Valerie Y. Suslow, *Oligopoly Pricing with Capacity Constraints*, 15/16 ANNALES D'ÉCONOMIE ET DE STATISIQUE 267 (1989); Jonathan B. Baker, *Econometric Analysis in FTC v. Staples,* 18 J. PUB. POL'Y & MARKETING 11 (1999).

49. Moreover, in many cases, one of the two firms will provide no more than a limited constraint on the prices charged by the other. Most duopoly markets are served by an ILEC and a CLEC. Many CLECs experience substantial impediments to expanding output, including high marginal costs of serving another customer in a building. (These impediments are discussed below in Section V.B(2)(b)(ii).) Under such circumstances, the CLEC would not have an incentive to compete aggressively with the ILEC on price. For the same reason, some or all of the CLECs participating in the markets served by more than two providers may have limited incentive to compete aggressively in those locations.[49]

50. Output expansion by rivals is unlikely to be substantial in most markets: there are no rivals in monopoly markets, one of the firms in a duopoly market may experience substantial impediments to expanding output, and some (and perhaps most) firms may experience substantial impediments to expanding output in the markets served by more than two firms. (Under such circumstances, the supply elasticity for rivals to ILECs would not be characterized as elastic.)

51. These considerations indicate that providers of dedicated services are likely able to exercise market power in most dedicated services markets, and would be expected to charge prices above competitive levels

[49] Put differently, it is likely that the count of firms participating in a market systematically overstates the number of *significant* rivals.

unless prevented by regulation. (The prospect of entry is unlikely to deter market participants from charging supracompetitive prices, for reasons discussed in Section VI below.) Moreover, the exercise of market power may also harm competition on non-price dimensions, as through reduced product quality, reduced product variety, reduced service, or diminished innovation.[50]

52. The structural framework applied above is comparable to the market power analysis that the Commission has undertaken in other proceedings. Demand elasticity is accounted for in market definition; market rivalry is accounted for through the analysis of market structure (number of market participants) and the analysis of CLEC incentives to expand (which also accounts for the elasticity of supply by the ILEC's rivals); and entry is discussed below.

(2) Regression Analysis

53. The empirical analysis discussed below shows that ILEC prices to end users **[BEGIN HIGHLY CONFIDENTIAL]** [redacted]

[50] U.S. Dep't of Justice & Fed. Trade Comm'n, Horizontal Merger Guidelines § 1 (2010).

[redacted] **[END HIGHLY CONFIDENTIAL]**

54. A negative relationship between price and the number of rivals would be expected if firms exercise market power when they face few or no rivals. **[BEGIN HIGHLY CONFIDENTIAL]** [redacted]

[redacted] **[END HIGHLY CONFIDENTIAL]**

55. The regression model reported in Table 2 relates the price charged for a dedicated connection to the number of in-building and nearby facilities-based providers offering service at the customer's location (*e.g.*, to other customers in the same building). The independent variables include dummy variables that indicate the number of in-building and nearby rivals, separately,[51] as well as a dummy variable that indicates whether the building is served by a provider that has leased a UNE.

56. The specification includes fixed effects that control for provider identity (and, for ILECs, provider price zones), customer location (identified by census tract), and service type (DS1, DS3, PBDS, and other CBDS). In addition, the specification includes dummy variables

[51] Although most locations are served by no more than two providers, the large number of observations in the sample of ILEC retail prices (more than one million) provide enough data to estimate the incremental price effects of more than two firms. *Cf.* **[BEGIN HIGHLY CONFIDENTIAL]** [redacted] **[END HIGHLY CONFIDENTIAL]**.

identifying observable customer features (whether the provider also serves the customer at other locations, whether the customer purchases more than one connection, whether at least three additional end users at the same location also purchase dedicated services), and whether the connection was sold under a term and/or volume commitment. The specification also includes logarithm of bandwidth as a control variable.

(a) Summary of Results

57. Column (1) of Table 2 summarizes the results from estimating the primary specification, where the dependent variable is the log price of retail dedicated services connections sold by ILECs. The percentage changes in price from incremental facilities-based providers of the types indicated can be inferred from the regression coefficients reported in Table 2.[52] **[BEGIN HIGHLY CONFIDENTIAL]** [redacted] **[END HIGHLY CONFIDENTIAL]** The cells that indicate the

[52] The regression coefficients reported in Tables 2 and 3 may be converted into percentage changes using the formula: **[BEGIN HIGHLY CONFIDENTIAL]** [redacted] **[END HIGHLY CONFIDENTIAL]**

incremental price change from providers nearby are interpreted similarly.

[BEGIN HIGHLY CONFIDENTIAL] [redacted]

[redacted]

[53] **[BEGIN HIGHLY CONFIDENTIAL]** [redacted] **[END HIGHLY CONFIDENTIAL]**

[redacted]

[54] **[BEGIN HIGHLY CONFIDENTIAL]**[redacted] **[END HIGHLY CONFIDENTIAL]**

[55] **[BEGIN HIGHLY CONFIDENTIAL]** [redacted] **[END HIGHLY CONFIDENTIAL]**

[56] **[BEGIN HIGHLY CONFIDENTIAL]**[redacted] **[END HIGHLY CONFIDENTIAL]**

[redacted]

[57] **[BEGIN HIGHLY CONFIDENTIAL]**[redacted]**. [END HIGHLY CONFIDENTIAL]**

63. [redacted] **[END HIGHLY CONFIDENTIAL].**[58] **[BEGIN HIGHLY CONFIDENTIAL]** [redacted] **[END HIGHLY CONFIDENTIAL].**[59] **[BEGIN HIGHLY**

[58] These cumulative effects are significant statistically.

[59] This could be the product of the many sources of potential bias, discussed below, which could affect the results in some samples more than in others.

CONFIDENTIAL] [redacted]

[redacted]

[END HIGHLY CONFIDENTIAL]

(b) Statistical Issues Affecting Interpretation

68. **[BEGIN HIGHLY CONFIDENTIAL]** [redacted] **[END HIGHLY CONFIDENTIAL]** Six reasons – unobservable customer heterogeneity, unobservable impediments to CLEC expansion, errors in measuring the price of dedicated services, multi-year ILEC contracts, unobservable wholesale customer switching costs, and ILEC wholesale pricing policies – are discussed below.

[BEGIN HIGHLY CONFIDENTIAL] [redacted]

[60] **[BEGIN HIGHLY CONFIDENTIAL]** [redacted] **[END HIGHLY CONFIDENTIAL]**

[61] **[BEGIN HIGHLY CONFIDENTIAL]** [redacted] **[END HIGHLY CONFIDENTIAL]**

[redacted]

[END HIGHLY CONFIDENTIAL]

i. Unobservable Customer Heterogeneity

69. First, a selection problem tied to customer heterogeneity observable to the providers but not to the econometrician implies that when the true relationship between price and rivalry is inverse, it will be difficult to detect that relationship in the data. In the Special Access data, some customer heterogeneity can be controlled for – the primary specification does so to some extent with indicators for multi-location customers, multi-connection customers, other customers at the customer's location, and census tract – but these controls are imperfect and much unobservable customer heterogeneity likely remains. In particular, it is unlikely that the observable customer characteristics in the data set control well for a number of factors observable to the firms that may affect customer willingness to pay, such as the number of customer locations, type of business, character of managed services purchased, and past purchases of dedicated services.

70. The statistical bias that results from unobservable customer heterogeneity arises because rivalry is more likely (CLECs are more likely to enter) where customers have the highest willingness to pay for dedicated services (holding constant entry costs). A hypothetical example, with unrealistic numbers chosen to make the statistical issue transparent, will illustrate the point.

71. Suppose there are two types of customers. Type A customers have a high willingness to pay for dedicated services, and they would pay up to 20 for those services. Type B customers have a low willingness to pay; they would pay no more than 14 for the same services. Assume further that with perfect competition, customers of either type would be charged a price of 10, the cost of servicing the customer.

72. A dedicated services monopolist can price discriminate perfectly, and would charge each customer its willingness to pay. But price would be lower if there are more competitors. A Type A customer would pay 20 with only one firm seeking its business, and 16 with two firms competing. A Type B customer would pay 14 with one firm, and 12 with two firms.

73. With the cost of providing service to the customer equal to 10, an entrant would prefer to compete for Type A customers: it would earn a profit of 6 as the second firm serving Type A customers but would only earn 2 as the second firm serving Type B customers. Hence entry is more likely where the provider can compete for Type A customers.

74. In this example, the true relationship between price and the number of rivals is inverse, but the econometrician may not be able to detect it if he or she cannot tell the difference between Type A and Type B customers. Suppose, as suggested by the attractiveness of entry to serve Type A customers, two firms compete for the business of most Type A customers while one firm competes for the business of most Type B customers. Then the data will typically show that the price is typically 14 with one firm and typically 16 with two firms: it will appear, incorrectly, as though price rises slightly as the number of firms increase. More generally, even when the underlying relationship between price and the number of competitors is strongly inverse (lower price with more rivals), an econometrician unable to control fully for customer heterogeneity may observe a weakly inverse relationship, no relationship, or even a direct relationship (higher price with more rivals).[62]

75. **[BEGIN HIGHLY CONFIDENTIAL]** [redacted]

[62] This problem could be solved if the econometrician can tell which customers are of which type, and control for customer type in the regression analysis. Then it would be possible to observe that increasing the number of rivals from one to two leads to a drop in price from 20 to 16 for Type A customers and a decline from 14 to 13 for Type B customers. (The problem can also be viewed as an endogeneity issue: a failure to account for a second relationship between price and the number of rivals, in which higher prices attract rivalry. If entry is more likely when customers are Type A, exogenous factors related to whether a customer is Type A would be natural instrumental variables to use in estimating a relationship between price and number of rivals. Using such instruments would be like controlling for customer type.)

[redacted] **[END HIGHLY CONFIDENTIAL]**

ii. Unobservable Impediments to CLEC Expansion

76. Second, unobservable impediments to CLEC expansion, including high marginal costs, would make it more difficult to detect an inverse relationship between rivalry and prices. As the examples below will

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[63] **[BEGIN HIGHLY CONFIDENTIAL]** [redacted] **[END HIGHLY CONFIDENTIAL]**

[64] **[BEGIN HIGHLY CONFIDENTIAL]** [redacted] **[END HIGHLY CONFIDENTIAL]**

indicate, economically relevant elements of marginal cost extend beyond the costs of building new connections and deploying equipment.

77. CLECs may experience substantial impediments to expanding output in many regions, often for reasons observable to the providers but not to the econometrician. This will limit the number of locations where a greater CLEC presence would be associated with lower prices, making it more difficult to detect an inverse relationship between price and rivalry in the data.

78. A CLEC's marginal costs of expansion may be high where many customers require service at multiple locations, and the CLEC must rely on connections leased from ILECs to provide service at a substantial fraction of those locations. As previously discussed, ILECs have an incentive to raise the price of wholesale connections to limit retail competition, **[BEGIN HIGHLY CONFIDENTIAL]** [redacted] **[END HIGHLY CONFIDENTIAL]**

79. In addition, a CLEC may experience impediments to output expansion to end users when the building owner refuses to grant the CLEC access or charges a high access fee, or when it is difficult or costly to obtain rights of way to a specific building (*e.g.*, pole access or costs of burying lines). These costs can vary substantially from building to building, even on the same block.

80. Unobservable differences across customers may also be understood as impeding a CLEC's expansion. CLECs focus expansion efforts on locations where customers offer the greatest potential revenues. When a customer that currently obtains dedicated services looks like a less attractive target to a CLEC for this reason, the CLEC may not compete for its business; it is as though the CLEC's cost of serving that customer (inducing it to switch from its current provider) is prohibitive. Hence the prices those customers are charged may be high even though other providers offer in-building service or have nearby fiber.

81. The geographic dummy variables in the regression analyses would control only imperfectly for these impediments to CLEC expansion, as these difficulties and costs are likely to vary across the buildings within a census tract, and may also vary across customers within a building. Hence locations where individual CLECs experience substantial impediments to expansion for these reasons would be unobservable to the econometrician to a substantial extent.

82. Where a CLEC that is present at a customer location or nearby faces significant impediments to output expansion for reasons such as these, that CLEC would not provide a substantial constraint on high prices charged by its rivals. Incumbents and other CLECs would not be expected to react to that CLEC's presence by lowering price (or to set up systems for quoting prices to prospective customers that would have this effect). Such

a CLEC may be a nominal rival but not a significant one (one that constrains prices). When a CLEC with significant impediments to expanding output at a location cannot be identified in the data, the count of the number of providers at or near that location will thus overstate the effective number of rivals. Hence the average estimated relationship between price and the presence of additional rivals will understate the consequences of increased CLEC rivalry for prices.

83. A hypothetical example, with unrealistic numbers chosen to make the statistical issue transparent, will illustrate the point. Suppose that there are three types of locations in the data. In the first type of location, no CLECs experience significant impediments to output expansion; all are significant rivals. In these locations, the presence of each additional CLEC leads to a 6% reduction in the price of dedicated connections relative to the price an ILEC monopolist would charge. In the second type of location, half the CLECs have significant impediments to expansion. All would be counted as rivals in the data analysis but only half would be significant rivals. In these locations, on average, the presence of each additional CLEC would appear to lead to a 3% reduction in the price of dedicated connections relative to the price an ILEC monopolist would charge. In the third type of location, all CLECs experience significant impediments to output expansion. All would be counted as rivals but none would be significant rivals. In these locations, the presence of each

additional CLEC leads to no observed reduction in the price of dedicated connections from the high price an ILEC monopolist would charge.

84. Suppose further that in the data overall, 10% of the locations are of the first type, 10% are of the second type, 80% are of the third type (no observed price reduction), and the type of location is unobservable to the econometrician. Then the econometrician would estimate that each additional CLEC would be associated with a 0.9% reduction in price (6% x 10% + 3% x 10% + 0% x 80%). The econometrician would not be able to recognize that in 15% of the locations (all the locations of the first type and half the locations of the second type), rivalry from each additional CLEC leads to a 6% reduction in price (or, put differently, that adding a significant rival leads to a 6% reduction in price).

85. Moreover, in the example, the apparent result that each additional CLEC leads to a 0.9% reduction in the ILEC price, a figure that some might not consider large economically, does not imply that ILECs price competitively when they face few or no CLEC rivals. As the example shows, when many CLECs experience significant impediments to output expansion, estimating a small or negligible reduction in the ILEC's retail price associated with each additional CLEC is consistent with the exercise of market power by the ILEC; it should not be interpreted as indicating that potential rivalry from CLECs constrains ILEC pricing not to exceed competitive levels.

iii. Errors in Measuring Price

86. Third, errors in measuring the price of dedicated services may make it more difficult to detect in the data the relationship between rivalry and prices. When the prices of dedicated services are provided in the data, they are measured less precisely when those services are provided in conjunction with managed services than when the end user purchases no managed services in conjunction with transmission on a dedicated connection. The resulting measurement error in the dependent variable increases the difficulty of identifying any relationship in the data when a relationship is present.

87. When a provider sells a customer managed services along with a dedicated connection, the provider and customer may negotiate the price of both as a package. Prices may be quoted separately on the provider's bill,[65] but the customer is concerned primarily with the price of the package as a whole. Under such circumstances, allocation of the total price between the dedicated services component and the managed services for some providers may have an arbitrary element from an economic perspective.[66] This means that from the point of view of the data analysis,

[65] The provider sets the price of individual services recorded on the bill.

[66] **[BEGIN HIGHLY CONFIDENTIAL]** [redacted] **[END HIGHLY CONFIDENTIAL]**

the prices of some dedicated services connections may be measured with error when the provider sells the customer managed services too.

88. Moreover, when the provider offers a customer a discount on the package of services the customer purchases in response to competition, it may prefer to allocate those discounts primarily to managed service components when preparing its bill, and quote a high price for the dedicated services component. The prices quoted for individual services may matter to some providers in the event that the customer drops some services at the end of the contract term, because the recorded price may be the starting point for a negotiation over the future price of the remaining services. Because dedicated services would be the last services a customer would drop, the provider may want to keep its price high.

89. For these reasons, the observed retail prices may tend to incorporate greater measurement error when the customer is purchasing managed services along with dedicated connections than when the customer is purchasing little or no additional services beyond dedicated services. Moreover, the observed retail prices may tend not to decline as rivalry increases even when that greater rivalry leads to a reduction in the price of the package of services sold to the customer. The measurement error increases the difficulty of isolating the relationship between prices and the number of providers when analyzing the data, and the disincentive to attribute discounts to the dedicated services component of the package

sold to the customer means that it will tend to appear as though price does not decline when the number of providers increases even though those rivals impose a substantial competitive constraint.

iv. Multi-year ILEC Contracts

90. Fourth, when ILECs have multi-year contracts with their retail or wholesale customers, the price recorded in the data will not reflect the competitive effects of additional rivals that emerge during the contract term. This will again make it more difficult to detect the full effect of additional rivalry on price.

91. When the ILEC has a multi-year contract, the ILEC's price recorded in the data would be set at the time the contract is entered into. If CLEC entry occurs during the term of the contract, the recorded price would not change; the influence of the additional rival on the ILEC's price would not be apparent in the data until the contract is renewed. If, for example, three-year ILEC contracts with customers are common, CLEC entry during the prior year would not affect the observed price for two-thirds of those customers; and CLEC entry the year before that would not affect the price for one-third of those customers. [67]

92. **[BEGIN HIGHLY CONFIDENTIAL]** [redacted]

[redacted]

[67] **[BEGIN HIGHLY CONFIDENTIAL]** [redacted] **[END HIGHLY CONFIDENTIAL]**

[redacted] **[END HIGHLY CONFIDENTIAL]**

v. Unobservable wholesale customer switching costs

93. Fifth, some CLECs may have unobservable costs of switching wholesale providers arising from penalty clauses and loyalty discounts in ILEC wholesale contracts. If such a CLEC can obtain a substitute wholesale connection for less than it is paying the ILEC, it may not switch because that may trigger a penalty under its loyalty discount agreement with the ILEC.[68] Thus the wholesale price would remain at the level that the CLEC pays the ILEC regardless of whether other wholesale providers offer the connection for less. A CLEC's disincentive to switch away from an ILEC may also inhibit the incentive of other providers to offer discounts to induce the CLEC to do so. Hence the prices of wholesale connections would tend not to decline as the number of rivals grows, even if prices are above competitive levels and even if prices would be inversely related to the number of rivals in the absence of penalty clauses and loyalty discounts. **[BEGIN HIGHLY CONFIDENTIAL]** [redacted]

[68] Declaration of Gary Black, Jr. on behalf of Level 3 Communications, Inc. ¶¶13-24.

r [redacted] **[END HIGHLY CONFIDENTIAL]**

vi. ILEC Wholesale Pricing Policies

94. ILECs employ pricing policies that limit the cross-sectional variation in their wholesale prices. In particular, prices are often set identically across the buildings within the area served by a wire center or, to similar effect, buildings may be placed in a small number of price buckets.[69] These policies mean that the influence of wholesale rivalry on prices can best be measured in a data set with a time series component, and, thus, are unlikely to be observable in the FCC's Special Access Data, which is limited to a single year.[70] **[BEGIN HIGHLY CONFIDENTIAL]** [redacted] **[END HIGHLY CONFIDENTIAL]**

(c) Interpreting the Regression Results

[69] **[BEGIN HIGHLY CONFIDENTIAL]** [redacted] **[END HIGHLY CONFIDENTIAL]**. The ILECs may prefer not to vary prices across buildings within a region to economize on administrative costs. Another possibility is that the ILECs avoid negotiating the wholesale price for connections to individual buildings to discourage transactions with wholesale purchasers that compete with the ILECs at retail.

[70] **[BEGIN HIGHLY CONFIDENTIAL]** [redacted] **[END HIGHLY CONFIDENTIAL]**

95. **[BEGIN HIGHLY CONFIDENTIAL]** [redacted] **[END HIGHLY CONFIDENTIAL]** Moreover, each of the six statistical issues discussed above – unobservable customer heterogeneity, unobservable CLEC marginal cost, errors in measuring the price of dedicated services, multi-year ILEC contracts, unobservable wholesale customer switching costs, and ILEC wholesale pricing policies **[BEGIN HIGHLY CONFIDENTIAL]** [redacted] **[END HIGHLY CONFIDENTIAL]**

VI. Entry

96. Entry of new competitors can counteract or deter the exercise of market power.[71] This section focuses on the possibility of CLEC entry into the provision of dedicated services to end users in buildings, through the construction of new facilities. This might involve the construction of a lateral from an existing fiber ring to serve a customer location, or the construction of a new fiber ring along with laterals. The section explains

[71] Consistent with the approach of the Merger Guidelines, this section is concerned with entry plans requiring significant sunk costs or more time than the "rapid entry" considered in identifying market participants.

why the prospect of entry is unlikely to deter incumbent providers from charging supracompetitive prices.

97. Entry involves substantial fixed expenditures, including the costs incurred to build a fiber ring and laterals and install electronics on the connections.[72] The entrant may need a local construction permit, and permission from a building owner (in order to obtain building access). These are not always forthcoming, and even if they are, they add cost and delay, and may make entry prohibitively costly.[73] Costs also depend, among other things, on the length of the laterals and fiber rings built, the nature of the electronics added, whether the lines are buried, and local regulations (*e.g.*, a city may require replacement of cobblestones on scenic streets). Construction costs are typically higher in central business districts than in suburbs.[74]

98. CLEC costs of adding new facilities are lowest when those rings and laterals extend existing facilities because the CLEC is able to obtain substantial scope economies by taking advantage of network equipment, transport facilities, and fiber rings previously deployed nearby.[75] For this

[72] These fixed costs are the main reason for scale economies in the provision of dedicated services.

[73] Declaration of George Kuzmanovski (XO) ¶¶ 29, 32.

[74] *See generally* Windstream Decl. ¶ 51 **[BEGIN HIGHLY CONFIDENTIAL]** [redacted] **[END HIGHLY CONFIDENTIAL]**

[75] As discussed previously, in connection with defining nearby providers for the purpose of the regression analysis, CLECs typically do not deploy fiber to buildings more than a short distance from their fiber rings.

reason, CLECs are more likely to find it profitable to build new dedicated services facilities in proximity to existing ones.[76] Facilities-based entry at a distance from existing facilities (including cities not previously served at all) does occur, but when it does it is typically opportunistic, undertaken to serve unusually attractive customers, so not inconsistent with this generalization.

99. In addition to costs, entrants consider the potential revenue they could earn from prospective customers when evaluating entry opportunities.[77] Customers vary in the bandwidth the customer requires, the number of locations they wish to be served, and the types of services they demand. All of these, and other factors, influence the potential revenue. Moreover, customers prefer to work with CLECs that have a strong reputation for reliability and customer service. This customer preference limits the potential revenues available to CLECs that are not already established.

100. After accounting for costs, a recent study found that CLECs would not be able to obtain the revenue required to justify new construction in

[76] **[BEGIN HIGHLY CONFIDENTIAL]** [redacted] **[END HIGHLY CONFIDENTIAL]**; *cf.* Declaration of James Butman (TDS) (filed March 26, 2015) ¶¶ 7-14 (CLEC building costs are greater than ILEC building costs in part because ILECs have facilities closer to customer locations).

[77] *See, e.g.*, **[BEGIN HIGHLY CONFIDENTIAL]** [redacted] **[END HIGHLY CONFIDENTIAL]**

most business locations.[78] Construction of last-mile facilities along with a fiber ring would not be profitable in a representative example unless the CLEC can obtain at least a single 1 Gbps customer, three 50 Mbps customers, or seven 10 Mbps customers at each customer location;[79] in general, this will only be feasible in urban centers.

101. Beyond the costs addressed in that study, certain CLECs bear other costs arising from ILEC penalty clauses and loyalty discount provisions in their wholesale contracts. The contracts may in practice commit those CLECs to pay for a wholesale connection even after switching the customer over to its own connection.[80]

102. CLEC entry also involves at least two important risks. The first is whether the CLEC can obtain the dedicated services business of enough customers (among the potential customers likely to generate sufficient revenues) to make entry profitable, even if they add a lateral connection to a building with many potential customers that may be interested in dedicated services or extend a fiber ring to a neighborhood where

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[78] The study found that a CLEC would not find it profitable to build out its own last-mile facilities unless it can attain substantial end user density and penetration. CostQuest, Analysis of Fiber Deployment Economics for Efficient Provision of Competitive Service to Business Locations, Attachment A to Letter from Jennie Chandra, Windstream Corporation, to Marlene H. Dortch, Secretary, FCC, GN Docket Nos. 13-5 & 12-353, WC Docket Nos. 05-25 and 15-1, and RM-10593 (filed June 8, 2015) (*CostQuest Analysis*).

[79] *Id.* at 5. "Revenue from multiple lower-speed circuits sold to customers in a single building, aggregating to less than 1 Gbps, may exceed the cost of deployment, because market prices per Mbps are higher for lower capacity circuits." *Id.* at 5 n.3.

[80] Declaration of George Kuzmanovski (XO) ¶ 19 (XO generally declines to build facilities when doing so will increase its risk of falling short of a minimum purchase requirement under an ILEC commitment plan).

buildings have many potential customers. This risk can be mitigated to some extent by contracting with customers in advance of construction. CLEC efforts to manage this risk restrict the locations in which CLEC entry would be profitable.[81]

103. A second important risk is the threat of customer opportunism. CLEC contracts with customers are commonly no longer than three to five years; this term is substantially shorter than the typical lifetime of new facilities. Once the contract term ends, the customer is typically in a strong bargaining position with the CLEC, because the CLEC's entry will usually mean that the customer has a choice of dedicated services providers (generally also including an ILEC) at the time of renewal. For this reason, some CLECs assume, in evaluating the profitability of prospective entry, that end users will not contribute to CLEC profits much, if at all, beyond the term of their initial contract.[82]

104. To address these risks, CLECs commonly evaluate entry by requiring a short payback period (roughly comparable to the term of initial customer contracts) or, to similar effect, by demanding a high internal rate

[81] **[BEGIN HIGHLY CONFIDENTIAL]** [redacted] **[END HIGHLY CONFIDENTIAL]**

[82] Future profits would be non-existent if the end user switches providers or low if it uses that threat to negotiate a low rate. The CLEC's bargaining position at time of contract renewal would be stronger if its customers make sunk investments in the relationship. Whether its customers do so may depend on the nature of the services the customer purchases in addition to dedicated connectivity. CLECs will prefer to serve customers more likely to be "sticky" for that reason. But this possibility is not sufficiently common to incorporate into CLEC entry analyses.

of return.[83] Doing so has the effect of limiting entry by these CLECs to locations where they can target customers likely to generate high revenues.

105. The costs, risks, and difficulties for entry set forth above mean that entry would not be profitable in most locations,[84] and in those locations where it is most likely to be profitable (putting aside unusual opportunities to serve specific and particularly profitable customers), CLECs with nearby facilities, sales forces in place, and established reputations are the most likely potential entrants. These assets are scarce, so the pool of plausible potential entrants in the urban center locations where facilities-based entry is likely to be profitable is small. Consistent with this conclusion, in the urban centers of six major metropolitan areas studied,[85] **[BEGIN HIGHLY CONFIDENTIAL]** [redacted] **[END HIGHLY CONFIDENTIAL]**.[86]

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[83] **[BEGIN HIGHLY CONFIDENTIAL]** [redacted] **[END HIGHLY CONFIDENTIAL]**

[84] *See* Windstream Decl. ¶ 45 **[BEGIN HIGHLY CONFIDENTIAL]** [redacted] **[END HIGHLY CONFIDENTIAL]**

[85] These cities included Chicago, Minneapolis, Rochester, Nashville, Tampa, and Washington D.C.

[86] **[BEGIN HIGHLY CONFIDENTIAL]** [redacted]

106. **[BEGIN HIGHLY CONFIDENTIAL]** [redacted] **[END HIGHLY CONFIDENTIAL]** Even in urban centers, one would expect to see incumbents charging supracompetitive prices and accommodating limited entry.

VII. Conclusion

107. The structure of dedicated services markets indicates that ILECs are likely able to exercise market power in most markets, and would be expected to charge prices above competitive levels unless prevented by regulation. This conclusion is consistent with the statistical analysis of the data provided through the FCC's Special Access Data Collection, which indicates that ILEC retail prices are lower when CLECs compete with them and that ILEC retail prices tend to decline as the number of rivals selling dedicated services increases.

[redacted] **[END HIGHLY CONFIDENTIAL]**

Table 1

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Table 2

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Table 3

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Table 4

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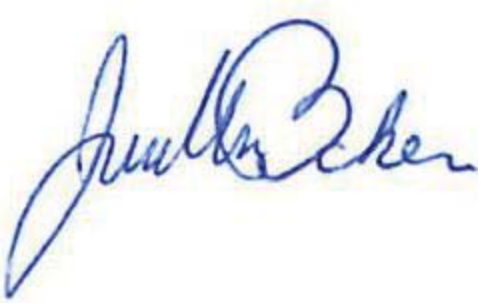
I declare under penalty of perjury that the foregoing is true and correct to the best of my information and belief.



_____ Executed on January 22, 2016

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PROFESSIONAL POSITIONS

Washington College of Law, American University
- Professor of Law, September 2002 to present
- Associate Professor of Law, January 1999 to August 2002
- Emalee C. Godsey Scholar, 2015
- Elizabeth Payne Cubberly Scholar, 2008
- University Faculty Award for Outstanding Scholarship, Research, and Other Professional Accomplishments, April 2004
- Egon Guttman Casebook Award, April 2004

Federal Communications Commission
- Chief Economist, August 2009 to May 2011
- Senior Economist for Transactions, June 2011 to November 2011

New York University School of Law
- Visiting Professor of Law, January 2010 to June 2010

European Commission, Competition Directorate-General
- Visitor, June 2005 to July 2005

Federal Trade Commission
- Director, Bureau of Economics, April 1995 to December 1998
- Award for Distinguished Service, October 1998
- Consultant (on merger policy), 2002 to May 2004

Council of Economic Advisers, Executive Office of the President
- Senior Economist, June 1993 to April 1995
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Antitrust Division, U.S. Department of Justice
- Special Assistant to the Deputy Assistant Attorney General for Economics, May 1991 to June 1993
- Director of Litigation Studies, Economic Analysis Group, September 1990 to June 1993

Georgetown University Law Center
- Adjunct Professor of Law, September 1990 to June 1995

Duke University School of Law
Olin Lecturing Fellow (visiting professor),
August 1992 to December 1992

The Amos Tuck School of Business Administration, Dartmouth College
Assistant Professor of Business Administration, September 1986 to August 1990
leave of absence, September 1990 to July 1992

Federal Trade Commission
Attorney Advisor to the Acting Chairman and Office of the Commissioner
October 1985 to July 1986

Foley & Lardner (Washington, D.C.)
Attorney, June 1982 to September 1985

EDUCATION

Ph.D. in economics, Stanford University, 1986
J.D., Harvard University, 1982
M.A. in economics, Stanford University, 1978
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(video available at http://techfreedom.org/post/102369660044/the-great-net-neutrality-debate-should-the-fcc-ban)

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Participant, Opening Plenary Session on Efficiency and Its Critics
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Final Report of Economic Evidence Task Force
ABA Section of Antitrust Law (Task Force Co-Chair)
Aug. 1, 2006
(available at http://www.abanet.org/antitrust/at-reports/01-c-ii.pdf)

Comments on Applying the Horizontal Merger Guidelines
March 2004
(available at http://www.ftc.gov/bc/mergerenforce/comments/bakerjon.pdf)

DOJ/FTC Merger Enforcement Workshop
Panel on Coordinated Effects, February 18, 2004
Economists and Lawyers' Roundtable, February 19, 2004
(transcript available at http://www.ftc.gov/bc/mergerenforce/index.html)

Roundtable with Former Directors of the FTC Bureau of Economics
September 4, 2003 (transcript available at http://www.ftc.gov/news-events/events-calendar/2003/09/roundtable-former-directors-bureau-economics)

DOJ/FTC Hearings on Health Care and Competition Law and Policy
Panel on Most Favored Nations Clauses, May 7, 2003
(transcript available at http://www.ftc.gov/ogc/healthcarehearings/index.htm)
(slides available at http://www.ftc.gov/ogc/healthcarehearings/docs/030507baker.pdf)

Comment on Airline Regulatory Policy
in Louis Uchitelle, Looking for Ways to Make Deregulation Keep Its Promises
New York Times, July 28, 2002

Residual Demand Estimation: A Gatekeeper Regression for Analyzing the Unilateral Competitive Effects of Mergers and Single Firm Market Power
Draft: July 2002

Roundtable Conference Participant, ABA Antitrust Section
Task Force Report, Perspectives on Fundamental Antitrust Theory, pp. 387-476, July 2001

Roundtable Conference Participant, ABA Antitrust Section
Task Force Report, Perspectives on the Concepts of Time, Change, and Materiality in Antitrust Enforcement, pp. 159-71, 207-372, July 2001

U.S. v. Microsoft Corporation, C-SPAN On-Line Chat, Online Town Hall Meeting, February 26, 2001

Panelist, Competition Policy in the World of B2B Electronic Marketplaces
Federal Trade Commission, June 30, 2000

Symposium on "The Microsoft Verdict: The Next Phase"
American Prospect Online, April 6, 2000

Letter to the Editor (Reply to Steiner FTC:Watch Editorial)
FTC: Watch, December 20, 1999 (with Jeremy Bulow)

Market Power and the Cross-Industry Behavior of Prices Around a Business Cycle Trough
Working Paper No. 221
Federal Trade Commission, December 1998
(with Peter A. Woodward)

Identifying the Firm-Specific Cost Pass-Through Rate
Working Paper No. 217, Federal Trade Commission, January 1998
(with Orley Ashenfelter, David Ashmore & Signe-Mary McKernan)

An Antitrust Seminar: A Candid Conversation on the Past, Present, and Future of Antitrust
panelist in a discussion sponsored by the New York State Bar Association, Antitrust Section, January 1997

"Hot Topics" at the Federal Trade Commission
presented at the American Bar Association, Section of Antitrust Law Spring Meeting, March 1996

Recent Developments in Antitrust Law and Economics
sponsored by the Antitrust, Trade Regulation and Consumer Affairs Section, District of Columbia Bar

Tacit Collusion	April 1992
Product Differentiation	March 1992
Entry	February 1992

Product Market Definition: Mergers Among Sellers of Branded Consumer Products
outline of presentation reprinted in The Antitrust Division and the FTC Speak on Current Developments in Federal Antitrust Enforcement and Consumer Protection, Practicing Law Institute (No. B4-6985), 1991

Asymmetric Oligopoly Behavior in the Aluminum Industry Around a Business Cycle Trough
Working Paper No. 256, Amos Tuck School, August 1990
(with Thomas B. Johnston and Peter A. Woodward)

Raising Rivals' Wages in the Postwar Automobile Industry
Working Paper No. 248, Amos Tuck School, January 1990

The Evolution of Health Care Institutions: An Economic Approach
presented at the 1989 Health Law Teachers Conference, June 1989

When is Conservation Better than Generation?
Working Paper No. 223
Amos Tuck School, May 1988; revised October 1988

The Simple Empirics of Strategic Instruments
Working Paper No. 202, Amos Tuck School, May 1987

Why Price Correlations Don't Define Antitrust Markets:
On Econometric Algorithms for Market Definition
Working Paper No. 149
Federal Trade Commission, January 1987

Insurance Against Product Failure and Moral Hazard in the Consumption of Other Goods
in Ph.D. dissertation, Stanford University, June 1986

The Effect of a Shopping Mall on Regional Retail Sales: An Econometric Analysis
Working Paper No. 1255-01
The Urban Institute, August 1978

EDITORIAL

Editorial Chair, Antitrust Law Journal
July 2000 to August 2004

Editorial Board, Review of Industrial Organization
August 2002 to December 2003

Guest Editor, Symposium on Antitrust at the Millennium
Antitrust Law Journal
Part I, vol. 68, no. 1, 2000
Part II, vol. 68, no.3, 2001

Contributing Editor, Antitrust Law Journal
August 1999 to July 2000
August 2007 to present

Advisory Board, Antitrust Abstracts (SSRN)
Advisory Board, Telecommunications and Regulated Industries Abstracts (SSRN)
October 1998 to present

Guest Editor, Symposium on Tacit Collusion
The Antitrust Bulletin, Spring 1993

OCCASIONAL REFEREE

American Economic Review
American Law and Economics Review
Antitrust Law Journal
Canadian Journal of Economics
Journal of Industrial Economics
Journal of International Economics
Journal of Law and Economics
Management Science
National Science Foundation
Quarterly Journal of Econ.
RAND Journal of Economics
Review of Econ. and Statistics
Review of Industrial Org.

TESTIMONY

Procaps S.A. v. Patheon Inc.
August 13, 2015 (deposition testimony)
December 6, 2013 (deposition testimony)

In re Text Messaging Antitrust Litigation
September 23, 2013 (deposition testimony)

United States v. Apple, Inc.
April 3, 2013 (deposition testimony)

Hearing on Merger Enforcement, Panel on Treatment of Efficiencies
Antitrust Modernization Commission, November 17, 2005
(written statement and hearing transcript available at http://govinfo.library.unt.edu/amc/commission_hearings/pdf/Baker_Statement.pdf)

In re Mercedes-Benz Antitrust Litigation
June 2, 2005 (deposition testimony)
May 5, 2006 (pretrial motion testimony)

In re Evanston Northwestern Healthcare Corp.
March 22, 2005 (trial testimony)
January 25, 2005 (deposition testimony)

Federal Trade Commission v. H.J. Heinz Co.
September 8, 2000 (trial testimony)
August 2000 (deposition testimony)
(Trial testimony discussed at David Marcus, Two and Three: Sponsored by the FTC, Corporate Control Alert, Sept 2000, pp. 11-17)

United States v. Northwest Airlines, Inc.
May 2000 (deposition testimony)

Oversight Hearing on "The Antitrust Enforcement Agencies"
House Committee on the Judiciary, April 12, 2000
(antitrust and high technology industries)

United States v. Airline Tariff Publishing Co.
June 1993 (declaration estimating consumer injury from air fare coordination)

United States Sentencing Commission
October 11, 1988 (organizational sanctions)

CASES LITIGATED

In re Certain Alkaline Batteries
United States International Trade Commission
1983 to 1984 (challenge to gray market imports)
(represented Duracell with other attorneys)

Christian Schmidt Brewing Co. v. G. Heileman Brewing Co.
1984 to 1985 (antitrust suit to block Heileman-Pabst merger)
(represented Heileman with other attorneys)

TEACHING

Antitrust and Regulation

Antitrust Law (American)
Regulatory Law and Policy (or Economic Regulation) (American, Georgetown)
Advanced Antitrust (or Antitrust Law and Economics: Recent Developments) (American, Duke, Georgetown)
Antitrust, Innovation and Intellectual Property (American)
Communications Law and Economic Regulation (American)
Business and Public Policy (or Business Environments) (Tuck)

Economics, Analytical Methods, and Law & Economics

Analytical Methods for Business Law (American)
Law and Economics (American)
Managerial Economics (microeconomics and industrial organization economics) (Tuck)
Problems in Managerial Economics (graduate level industrial org. economics) (Tuck)
Econometrics Seminar (Tuck)

Other Courses

Advanced Constitutional Law: Economic Clauses (American)
Contracts (American)

ACTIVITIES AND AFFILIATIONS

American Antitrust Institute
Advisory Board, 2001 to 2009, 2012 to date
Antitrust Litigation Achievement Awards Committee, 2013 to 2014

American Bar Association Section of Antitrust Law
AALS Liaison Committee, Chair, 2003 to 2004
Advisory Board on Section Reserves, 2007 to 2010
Antitrust Law Journal
Editorial Chair, July 2000 to July 2004
Contributing Editor, 1999 to 2000, 2007 to present
Antitrust Law Journal Working Group, 2008
Council, August 2004 to July 2007

Economics Committee, Vice Chair, 1995 to 1999
Long Range Planning Committee (ex officio), 2009 to 2010
Merger Standards Task Force, 1985 to 1986
Monograph Committee, 1992 to 1995
National Institute Committee, 1987
Program Co-Chair, Antitrust at the Millennium, September 2000 (co-sponsored by Amer. Univ. Washington Coll. of Law)
Section 2 Working Group, 2009 to 2010
Sherman Act §2 Committee, Vice Chair, 1992 to 1995
Task Force on Economic Evidence, Co-Chair, 2005 to 2006
Task Force on Fundamental Theory, 2000 to 2001
Task Force Serving as Liaison to the Modernization Commission, 2004 to 2007

American Bar Association Section of Administrative Law

American Economic Association

American Law & Economics Association
Area Organizer, Antitrust and Economic Regulation, 2002, 2006, 2011 & 2012

Association of American Law Schools
Antitrust and Economic Regulation Section
Chair, 2003
Executive Committee, 1999 to 2003

Charles River Associates (formerly CRA International)
Senior Consultant, 2002 to 2009

Committee for a Study of Competition in the U.S. Airline Industry
Transportation Research Board, National Research Council, 1998 to 1999

Compass Lexecon
Advisory Committee, 2011 to present
Senior Consultant, 2011 to present

Compass Lexecon Prizes (for economic papers in competition policy)
Selection Committee, 2007 to 2009

George Mason University School of Law, Law & Economics Center
Board of Advisors, Global Antitrust Institute, 2014 to present

Member of the Bar, District of Columbia
December 1982 to present

Washington College of Law, American University
Advisory Board, Program on International Information Communications Technology, 2014 to present

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